

Call Server and Media Gateway network configuration

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Reference list

The following is the reference for this section:

- *Software Input/Output: Maintenance* (553-3001-511)



CAUTION

Complete the procedures in the "Call Server software installation" chapter before attempting to do the "Call Server and Media Gateway network configuration".

Introduction

This chapter describes how to configure the Call Server and Media Gateways Ethernet ports, and the ELAN IP addresses using LD 117. For details on LD117, see the *Software Input/Output: Maintenance* (553-3001-511).

This chapter contains the following procedures:

- Procedure 30 "Login and accessing LD 117" on page 140.
- Procedure 32 "Configuring the Media Gateway 100BaseT Ethernet ports" on page 142.
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- Procedure 35 "Updating the network database and download to all Media Gateways" on page 149.

Configuring the 100 BaseT Ethernet ports on the Call Server and Media Gateways

All procedures in this chapter are performed on the Call Server using LD 117.

Replace the sample entry IP addresses with the IP addresses from your planning and engineering group.

Note: All sample entries in Procedure 31, Procedure 32, Procedure 33, and Procedure 34 are non-routeable IP addresses.

Procedure 30

Login and accessing LD 117

- 1 Log into the Call Server.
 - a. Enter **LOGI** and press **<cr>**.
The system response is **PASS?**
 - b. Enter the default password, **0000** and press **<cr>**.
- 2 To access LD 117, enter **LD 117** and press **<cr>**.

Procedure 31 Configuring the Call Server 100BaseT Ethernet ports

- For default pre-configured IP addresses, suitable for point-to-point links, go to step 3. For IP addresses given by your Planning and Engineering group, go to step 2.
- To configure each Call Server 100BaseT Ethernet port, enter the command:

CHG IPM <port> <IP address> [<subnet mask>]

Where:

- <port>** = the port number of the 100BaseT port on the Call Server.
- <IP address>** = the IP address of the 100BaseT port on the Call Server.
- [<subnet mask>]** = the subnet mask of the 100BaseT port on the Call Server. (This entry is optional.)

Sample entry:

```
CHG IPM 1 192.168.0.10 255.255.255.0
CHG IPM 2 192.168.0.20 255.255.255.0
CHG IPM 3 192.168.0.30 255.255.255.0
CHG IPM 4 192.168.0.40 255.255.255.0
```

- To verify the Call Server 100BaseT Ethernet port configuration, enter the command:

PRT IPM

The system response is, as follows:

port	IP Address	mask
IPM 1	192.168.0.10	255.255.255.0
IPM 2	192.168.0.20	255.255.255.0
IPM 3	192.168.0.30	255.255.255.0
IPM 4	192.168.0.40	255.255.255.0

Procedure 32 Configuring the Media Gateway 100BaseT Ethernet ports

- For default pre-configured IP addresses, suitable for point-to-point links, go to step 2. For IP addresses given by your Planning and Engineering group, go to step 3.
- If the system uses the default pre-configured IP addresses, enter the following commands to define only the MAC addresses:

CHG IPR <port> <MAC address>

Where:

- <port>** = the port number of the 100BaseT port on the Call Server.
- <MAC address>** = the MAC address of the 100BaseT port on the Media Gateway, that you noted in Procedure 12 on page 95.

- If your Planning and Engineering group provided specific IP addresses, enter the following commands to define the MAC addresses, IP address, and subnet masks:

CHG IPR <port> <MAC address> [<IP address> <subnet mask> <zero bandwidth>]

Where:

- <port>** = the port number of the 100BaseT port on the Call Server.
- <MAC address>** = the MAC address of the 100BaseT port on the Media Gateway, that you noted in Procedure 12 on page 95.
- <IP address>** = the IP address of the 100BaseT port on the Media Gateway. (This entry is optional.)
- <subnet mask>** = the subnet mask of the 100BaseT port on the Media Gateway. (This entry is optional.)
- <zero bandwidth>** = flag (default: NO) (This entry is optional.)

**CAUTION****Service Interruption**

If you are running the Call Server and Media Gateways in point to point, zero bandwidth must be NO.

If a Clock controller (T1 or E1) is in the Media Gateways, zero bandwidth must be NO for that link.

Setting the zero bandwidth to NO enables the Call Server to have a clock reference.

Sample entry:

```
CHG IPR 1 00:90:CD:05:9D:CB 192.168.0.11 255.255.255.0 NO
CHG IPR 2 00:90:CD:8E:29:FF 192.168.0.21 255.255.255.0 NO
CHG IPR 3 00:90:CD:45:39:6A 192.168.0.31 255.255.255.0 NO
CHG IPR 4 00:90:CD:05:38:8E 192.168.0.41 255.255.255.0 NO
```

- 4 To verify the Media Gateway 100BaseT Ethernet port configuration, enter the command:

PRT IPR

port MAC address IP Address mask zero bandwidth

```
-----
IPR 1 00:90:cd:05:9d:cb 192.168.0.11 255.255.255.0 NO
IPR 2 00:90:cd:8e:29:ff 192.168.0.21 255.255.255.0 NO
IPR 3 00:90:cd:45:39:6a 192.168.0.31 255.255.255.0 NO
IPR 4 00:90:cd:05:38:8e 192.168.0.41 255.255.255.0 NO
```

Configuring the ELAN ports of the Call Server and Media Gateways

Procedure 33**Configuring the Call Server ELAN IP**

- 1 To configure the subnet mask for the Call Server ELAN subnet, enter the command:

```
CHG MASK <subnet mask> [<MG #>]
```

Where:

- <MG #> = 0 for the Call Server.
- <MG #> = 1 for Media Gateway 1.
- <MG #> = 2 for Media Gateway 2.
- <MG #> = 3 for Media Gateway 3.
- <MG #> = 4 for Media Gateway 4.

Note: The above list applies wherever the <MG #> response is required.

For the Media Gateway number you can use the system default of '0' or type '0' and your response applies to the Call Server.

Sample entry:

```
CHG MASK 255.255.255.0
```

- 2 Verify the subnet mask for the Call Server ELAN subnet, enter the command:

```
PRT MASK [<MG #>]
```

The system response is as follows:

```
SUBNET MASK: "255.255.255.0"
```

- 3 To create a host entry for the Call Server ELAN IP, enter the command:

```
NEW HOST <hostname> <IP address>
```

Where:

<hostname> = **is** your defined name.

Sample entry:

```
NEW HOST CS_ELAN 192.11.0.100
```

- 4 Verify the host entries, enter the command:
- ```
PRT HOST
```
- The system response is, as follows:
- | ID | Hostname | IP Address   |
|----|----------|--------------|
| 1  | CS_ELAN  | 192.11.0.100 |
- 5 Set the active ELNK entry for the Call Server, enter the command:
- ```
CHG ELNK ACTIVE <hostname> [<MG #>]
```
- Where:
- <hostname> = is your defined name.
- ```
CHG ELNK ACTIVE CS_ELAN
```
- 6 Verify active ELNK settings, enter the command:
- ```
PRT ELNK [<MG #>]
```
- The system response is, as follows:
- ```
ACTIVE ETHERNET: "CS_ELAN" "192.11.0.100"
```
- 7 Configure routing entry for Call Server, only required if ELAN is connected to other subnets through a router, enter the command:
- ```
NEW ROUTE <destination network IP> <default gateway IP> [<MG #>]
```
- Where:
- <destination network IP> = is the network IP of 0.0.0.0 for default route.
- Sample entry:
- ```
NEW ROUTE 0.0.0.0 192.11.0.1
```
- 8 Verify routing entries, enter the command:
- ```
PRT ROUTE
```
- The system response is, as follows:
- | Call Server ID | Destination | Gateway | Port |
|----------------|-------------|------------|------|
| 1 | 0.0.0.0 | 192.11.0.1 | 0 |

Procedure 34**Configuring the Media Gateway ELAN IPs**

- 1 Configure the subnet mask for each Media Gateway ELAN subnet, enter the command:
- ```
CHG MASK <subnet mask> [<MG #>]
```
- Sample entry:
- ```
CHG MASK 255.255.255.0 1
CHG MASK 255.255.255.0 2
CHG MASK 255.255.255.0 3
CHG MASK 255.255.255.0 4
```
- 2 Verify the subnet mask for each Media Gateway ELAN subnet.
- syntax: PRT MASK [<MG #>]
- ```
PRT MASK 1
```
- The system response is as follows:
- ```
SUBNET MASK: "255.255.255.0"
```
- ```
PRT MASK 2
```
- The system response is as follows:
- ```
SUBNET MASK: "255.255.255.0"
```
- ```
PRT MASK 3
```
- The system response is as follows:
- ```
SUBNET MASK: "255.255.255.0"
```
- ```
PRT MASK 4
```
- The system response is as follows:
- ```
SUBNET MASK: "255.255.255.0"
```
- 3 Create a host entry for each Media Gateway ELAN IP, enter the command:
- ```
NEW HOST <hostname> <IP address> <Cab#>
```
- Where:
- <hostname> = is your defined name.

Sample entry:

```
NEW HOST MG1_ELAN 192.11.0.101 1
NEW HOST MG2_ELAN 192.11.0.102 2
NEW HOST MG3_ELAN 192.11.0.103 3
NEW HOST MG4_ELAN 192.11.0.104 4
```

- 4 Verify the host entries, enter the command:

PRT HOST

The system response is as follows:

| ID | Hostname | IP Address   |
|----|----------|--------------|
| 1  | CS_ELAN  | 192.11.0.100 |
| 2  | MG1_ELAN | 192.11.0.101 |
| 3  | MG2_ELAN | 192.11.0.102 |
| 4  | MG3_ELAN | 192.11.0.103 |
| 5  | MG4_ELAN | 192.11.0.104 |

- 5 Set the active ELNK entry for each Media Gateway, enter the command:

```
CHG ELNK ACTIVE <hostname> [<MG #>]
```

Where:

<hostname> = is your defined name.

Sample entry:

```
CHG ELNK ACTIVE MG1_ELAN 1
CHG ELNK ACTIVE MG2_ELAN 2
CHG ELNK ACTIVE MG3_ELAN 3
CHG ELNK ACTIVE MG4_ELAN 4
```

- 6 Verify active ELNK settings.

**syntax:** PRT ELNK [<MG #>]

PRT ELNK 1

The system response is as follows:

```
ACTIVE ETHERNET: "MG1_ELAN" "192.11.0.101"
```

PRT ELNK 2

The system response is as follows:

```
ACTIVE ETHERNET: "MG2_ELAN" "192.11.0.102"
```

PRT ELNK 3

The system response is as follows:

```
ACTIVE ETHERNET: "MG3_ELAN" "192.11.0.103"
```

PRT ELNK 4

The system response is as follows:

```
ACTIVE ETHERNET: "MG4_ELAN" "192.11.0.104"
```

- 7 Configure routing entry only required if ELAN is connected to other subnets through a router, enter the command:

```
NEW ROUTE <destination network IP> <default gateway IP>
[<MG #>]
```

Where:

<destination network IP> = is the network IP of 0.0.0.0 for default route.

Sample entry:

```
NEW ROUTE 0.0.0.0 192.11.0.1 1
NEW ROUTE 0.0.0.0 192.11.0.1 2
NEW ROUTE 0.0.0.0 192.11.0.1 3
NEW ROUTE 0.0.0.0 192.11.0.1 4
```

- 8 Verify routing entries, enter the command:

PRT ROUTE

The system response is as follows:

| Call Server |             |            |
|-------------|-------------|------------|
| ID          | Destination | Gateway    |
| 1           | 0.0.0.0     | 192.11.0.1 |

  

| Media Gateway # 1 |             |            |
|-------------------|-------------|------------|
| ID                | Destination | Gateway    |
| 1                 | 0.0.0.0     | 192.11.0.1 |

  

| Media Gateway # 2 |             |            |
|-------------------|-------------|------------|
| ID                | Destination | Gateway    |
| 1                 | 0.0.0.0     | 192.11.0.1 |

  

| Media Gateway # 3 |             |            |
|-------------------|-------------|------------|
| ID                | Destination | Gateway    |
| 1                 | 0.0.0.0     | 192.11.0.1 |



```
Media Gateway # 4
LD Destination Gateway Port
1 0.0.0.0 192.11.0.1 0
```

End of Procedure

**Procedure 35**  
Updating the network database and download to all Media Gateways

- 1 Enter the command:  
**UPDATE DBS**
- 2 Exit from LD 117, enter the command:  
**\*\*\*\***  
Reboot the Call Server for changes to take effect.
- 3 Push the Manual Init button on the Call Server SSC faceplate.

End of Procedure

## Auto-negotiation set up

The ELAN on the VGMC operates at half duplex only and is limited to 10BaseT operation due to filtering on the back planes.

The TLAN on VGMC operates at half duplex or full duplex and can run at 10BaseT or 100BaseT.

It is recommended that any network equipment connected to the ELAN or TLAN be set to Auto Sense/Auto Negotiate for correct operation. Although full duplex is preferred, it is not required. For example, for the IP Line application, half duplex has ample bandwidth for a VGMC even with 24 busy channels, VAD disabled, and G.711 codec with 10ms voice range.

It is risky to hard configure devices for speed and duplex mode. Every device and port must be correctly configured in order to avoid duplex mismatch problems which typically exhibit as lost packets and CRC errors. The VGMC cannot be set for 100BaseT/Full Duplex operation, and as a result the card's TLAN operates in Auto Negotiate mode. Duplex mismatches and lost packets occur if the TLAN interface is not configured properly.



**CAUTION**  
Service Interruption

Duplex mismatches occur in the LAN environment when one side is set to Auto Negotiate and the other is hard configured. The Auto Negotiate side adapts only to the speed setting of the fixed side. For duplex operations, the Auto Negotiate side sets itself to half duplex mode. So if the forced side is full duplex, a duplex mismatch results.

**Procedure 36**  
Logging into and accessing LD 117

- 1 Log into the Call Server.
  - a. Enter **LOGI** and press <cr>.
 

The system response is **PASS?**
  - b. Enter the default password, **0000** and press <cr>.
- 2 To access LD 117, enter **LD 117** and press <cr>.

**Procedure 37**  
Checking auto-negotiation setup on the Call Server to Media Gateway links

- 1 Enter the following command:  
**STAT AUTONEG IPM**  
The system responds with an output such as the following:  
**AUTO-NEGOTIATE LINK PARTNER STATUS - MAIN/CALL SERVER PORTS**

```

PORT Bandwidth Duplex Mode AutoNegotiate
=====
_LPM 1 100 Mbps full duplex ON
_LPM 2 UNKNOWN UNKNOWN -
_LPM 3 UNKNOWN UNKNOWN -
_LPM 4 UNKNOWN UNKNOWN -

```

- 2 Enter the following command:

**STAT AUTONEG IPR**

The system responds with an output such as the following:

AUTO-NEGOTIATE LINK PARTNER STATUS - EXPANSION/MEDIA  
GATEWAY PORTS

```

PORT Bandwidth Duplex Mode
=====
_LPR 1 100 Mbps full duplex ON
_LPR 2 UNKNOWN UNKNOWN -
_LPR 3 UNKNOWN UNKNOWN -
_LPR 4 UNKNOWN UNKNOWN -

```

**Note 1:** The message "100 Mbps full duplex" indicates that the ports have successfully negotiated the network connection. The message "UNKNOWN" indicates a failure to negotiate to 100 Mbps full duplex. In this example, 2, 3, and 4 are not installed.

**Note 2:** When UNKNOWN is displayed for a connected Media Gateway, perform Procedure 38 to ensure that the 100 BaseT ports and the Call Server ports have AUTONEG ON.

End of Procedure

#### Procedure 38

##### Changing auto-negotiation of the Call Server to Media Gateway links

- 1 For each Call Server port configured to a Media Gateway, use the following command, entering the appropriate Call Server port number and selecting ON.

**CHG AUTONEG IPM <port> <ON/OFF>**

For example, if the port number is 1:

**CHG AUTONEG IPM 1 ON**

- 2 For each Media Gateway port configured to a Call Server, use the following command, entering the appropriate Media Gateway port number and selecting ON.

**CHG AUTONEG IPR <port> <ON/OFF>**

For example, if the port number is 1:

**CHG AUTONEG IPR 1 ON**



#### CAUTION

##### Service Interruption

If a link is already up when auto-negotiation is enabled, the TTY displays a LINK DOWN message. The link goes down because the data ports must perform the bandwidth negotiation protocol to obtain the required 100 Mbps full duplex. That process takes 5 to 7 seconds. Once that process is complete, the TTY displays a LINK UP message, and the system is ready for normal operations.

End of Procedure